

Application No. 10/806,802
Amendment "C" dated April 26, 2006
Reply to Office Action mailed February 3, 2006

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A sludge harvester for removing a concentrated ~~nutrient~~ sludge from a sludge pond comprising an aqueous dilute layer and a more concentrated sludge layer ~~containing mammalian fecal matter~~, the sludge harvester comprising:

a frame;

one or more wheels or skids attached to said frame;

means for gently breaking up at least a portion of a sludge layer ~~containing mammalian fecal matter~~ adjacent to an aqueous dilute layer without causing substantial mixing of the sludge layer and the adjacent aqueous dilute layer;

means for capturing at least a portion of a broken up sludge layer ~~containing mammalian fecal matter~~ without also capturing a substantial amount of liquid from the adjacent aqueous dilute layer; and

means for transporting captured sludge ~~containing mammalian fecal matter~~ from within said frame to a location outside of a sludge pond during use ~~external to said frame~~.

2. (Original) A sludge harvester as recited in claim 1, wherein said frame includes a flat bed.

3. (Original) A sludge harvester as recited in claim 2, wherein said flat bed includes a plurality of sideboards designed so as to reduce at least one of vortexing, turbulence, and mixing.

4. (Currently Amended) A sludge harvester as recited in claim 1, wherein said means for gently breaking up at least a portion of a sludge layer comprises a pin mixer.

5. (Currently Amended) A sludge harvester as recited in claim 1, wherein said means for gently breaking up at least a portion of a sludge layer comprises an auger.

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6. (Currently Amended) A sludge harvester as recited in claim 1, wherein said means for gently breaking up at least a portion of a sludge layer comprises a rake.

7. (Original) A sludge harvester as recited in claim 1, wherein said means for capturing at least a portion of a broken up sludge layer comprises a pump.

8. (Original) A sludge harvester as recited in claim 7, wherein said pump is designed so as to pump about 200 gallons per minute or less during use.

9. (Original) A sludge harvester as recited in claim 7, wherein said pump is designed so as to pump about 150 gallons per minute or less during use.

10. (Original) A sludge harvester as recited in claim 7, wherein said pump is designed so as to pump about 100 gallons per minute or less during use.

11. (Original) A sludge harvester as recited in claim 1, wherein the sludge harvester is designed so as to be self-propelled.

12. (Original) A sludge harvester as recited in claim 1, further comprising at least one of a tow rope, a chain, or a cable for pulling the sludge harvester through a sludge pond during use.

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13. (Currently Amended) A non self-propelled sludge harvester for removing a concentrated nutrient sludge from a ~~sludge ponds~~ pond, comprising:

a frame;

one or more ~~wheels or~~ skids attached to said frame that support said frame when the sludge harvester is pulled through a sludge pond;

at least one of a tow rope, a chain, or a cable for pulling the non self-propelled sludge harvester through a sludge pond during use;

at least one of a pin mixer, auger or rake designed and positioned so as to gently break up at least a portion of a sludge layer adjacent to a dilute layer without causing substantial mixing of the sludge layer and the adjacent dilute layer when the sludge harvester is in use; and

at least one suctioning pump designed and positioned so as to capture at least a portion of a broken up sludge layer without also capturing a substantial amount of liquid from the adjacent dilute layer.

14. (Currently Amended) A non self-propelled sludge harvester as recited in claim 13, wherein said pump is designed so as to pump a volume in a range of about 50 to about 150 gallons per minute during use so as to not capture a significant portion of the adjacent dilute layer during use.

15. (Currently Amended) A non self-propelled sludge harvester as recited in claim 13, wherein said frame includes a flat bed and a plurality of sideboards designed so as to reduce at least one of vortexing, turbulence, and mixing that might otherwise cause substantial mixing of the sludge layer and the adjacent dilute layer.

16. (Currently Amended) A method of processing a concentrated nutrient sludge from a sludge pond, comprising:

providing a sludge harvester as recited in claim 1 ~~[[13]]~~;

introducing said sludge harvester into a sludge pond having a dilute layer and a sludge layer; and

operating said sludge harvester so as to recover an organic sludge product comprising a portion of the sludge layer.

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17. (Original) A method as recited in claim 16, wherein said recovered organic sludge product has a high concentration of soluble nutrients.

18. (Original) A method as recited in claim 16, wherein operation of said harvester is at least partially automated.

19. (Original) A method as recited in claim 16, further comprising removing water from said organic sludge product to yield a wet or dry organic fertilizer product.

20. (Original) A method as recited in claim 16, further comprising applying said organic sludge product onto agricultural land.

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21. (Currently Amended) A sludge harvester for removing a concentrated nutrient sludge from a sludge pond, comprising:

a frame;

one or more wheels or skids attached to said frame;

means for gently breaking up at least a portion of a sludge layer adjacent to a dilute layer without causing substantial mixing of the sludge layer and the adjacent aqueous dilute layer; and

a pump attached to said frame for capturing at least a portion of a broken up sludge layer, said pump designed to pump about 200 gallons per minute or less during use without also capturing a substantial portion of liquid from the adjacent dilute layer.

22. (Currently Amended) A sludge harvester for removing a concentrated nutrient sludge from a sludge pond, comprising:

a frame;

one or more wheels or skids attached to said frame;

at least one of a pin mixer, auger or rake designed and positioned so as to gently break up at least a portion of a sludge layer adjacent to a dilute layer without causing substantial mixing of the sludge layer and the adjacent aqueous dilute layer when the sludge harvester is in use; and

at least one pump designed so as to pump a volume of about 200 gallons per minute or less during use and positioned so as to capture at least a portion of a broken up sludge layer without also capturing a substantial portion of liquid from the adjacent dilute layer.